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1 [Interaction of query evaluation and buffer management for information retrieval](#)



Björn T. Jónsson, Michael J. Franklin, Divesh Srivastava

 June 1998 **ACM SIGMOD Record , Proceedings of the 1998 ACM SIGMOD international conference on Management of data SIGMOD '98**, Volume 27 Issue 2

Publisher: ACM Press

 Full text available: [pdf\(1.81 MB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The proliferation of the World Wide Web has brought information retrieval (IR) techniques to the forefront of search technology. To the average computer user, "searching" now means using IR-based systems for finding information on the WWW or in other document collections. IR query evaluation methods and workloads differ significantly from those found in database systems. In this paper, we focus on three such differences. First, due to the inherent fuzziness of the natural language ...

2 [The elements of nature: interactive and realistic techniques](#)



Oliver Deussen, David S. Ebert, Ron Fedkiw, F. Kenton Musgrave, Przemyslaw Prusinkiewicz, Doug Roble, Jos Stam, Jerry Tessendorf

 August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

Publisher: ACM Press

 Full text available: [pdf\(17.65 MB\)](#)

 Additional Information: [full citation](#), [abstract](#)

This updated course on simulating natural phenomena will cover the latest research and production techniques for simulating most of the elements of nature. The presenters will provide movie production, interactive simulation, and research perspectives on the difficult task of photorealistic modeling, rendering, and animation of natural phenomena. The course offers a nice balance of the latest interactive graphics hardware-based simulation techniques and the latest physics-based simulation techniques ...

3 [External memory algorithms and data structures: dealing with massive data](#)



Jeffrey Scott Vitter

 June 2001 **ACM Computing Surveys (CSUR)**, Volume 33 Issue 2

Publisher: ACM Press

 Full text available: [pdf\(828.46 KB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Data sets in large applications are often too massive to fit completely inside the computers internal memory. The resulting input/output communication (or I/O) between

fast internal memory and slower external memory (such as disks) can be a major performance bottleneck. In this article we survey the state of the art in the design and analysis of external memory (or EM) algorithms and data structures, where the goal is to exploit locality in order to reduce the I/O costs. We consider a varie ...

Keywords: B-tree, I/O, batched, block, disk, dynamic, extendible hashing, external memory, hierarchical memory, multidimensional access methods, multilevel memory, online, out-of-core, secondary storage, sorting

4 Level set and PDE methods for computer graphics



David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker
August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

Publisher: ACM Press

Full text available: [pdf\(17.07 MB\)](#) Additional Information: [full citation](#), [abstract](#)

Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using partial differential equations to solve problems in computer graphics, geometric modeling and computer vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set eq ...

5 System-level power optimization: techniques and tools



Luca Benini, Giovanni de Micheli
April 2000 **ACM Transactions on Design Automation of Electronic Systems (TODAES)**, Volume 5 Issue 2

Publisher: ACM Press

Full text available: [pdf\(385.22 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This tutorial surveys design methods for energy-efficient system-level design. We consider electronic systems consisting of a hardware platform and software layers. We consider the three major constituents of hardware that consume energy, namely computation, communication, and storage units, and we review methods of reducing their energy consumption. We also study models for analyzing the energy cost of software, and methods for energy-efficient software design and compilation. This survey ...

6 Computing curricula 2001



September 2001 **Journal on Educational Resources in Computing (JERIC)**

Publisher: ACM Press

Full text available: [pdf\(613.63 KB\)](#) [html\(2.78 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

7 Recorded magnetic tape for information interchange (800 CPI, NRZI)



S. Gorn
April 1966 **Communications of the ACM**, Volume 9 Issue 4

Publisher: ACM Press

Full text available: [pdf\(1.36 MB\)](#) Additional Information: [full citation](#)

8



Special issue in parallelism in database systems: Query processing and inverted

indices in shared: nothing text document information retrieval systems

Anthony Tomasic, Hector Garcia-Molina

July 1993 **The VLDB Journal — The International Journal on Very Large Data Bases**,
Volume 2 Issue 3**Publisher:** Springer-Verlag New York, Inc.Full text available:  [pdf\(1.65 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

The performance of distributed text document retrieval systems is strongly influenced by the organization of the inverted text. This article compares the performance impact on query processing of various physical organizations for inverted lists. We present a new probabilistic model of the database and queries. Simulation experiments determine those variables that most strongly influence response time and throughput. This leads to a set of design trade-offs over a wide range of hardware configur ...

Keywords: file organization, full text information retrieval, inverted file, inverted index, performance, query processing, shared-nothing, striping

9 Special section: Reasoning about structure, behavior and function

B. Chandrasekaran, Rob Milne

July 1985 **ACM SIGART Bulletin**, Issue 93**Publisher:** ACM PressFull text available:  [pdf\(5.13 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)


The last several years' of work in the area of knowledge-based systems has resulted in a deeper understanding of the potentials of the current generation of ideas, but more importantly, also about their limitations and the need for research both in a broader framework as well as in new directions. The following ideas seem to us to be worthy of note in this connection.

10 GPGPU: general purpose computation on graphics hardware

David Luebke, Mark Harris, Jens Krüger, Tim Purcell, Naga Govindaraju, Ian Buck, Cliff Woolley, Aaron Lefohn

August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04****Publisher:** ACM PressFull text available:  [pdf\(63.03 MB\)](#) Additional Information: [full citation](#), [abstract](#)

The graphics processor (GPU) on today's commodity video cards has evolved into an extremely powerful and flexible processor. The latest graphics architectures provide tremendous memory bandwidth and computational horsepower, with fully programmable vertex and pixel processing units that support vector operations up to full IEEE floating point precision. High level languages have emerged for graphics hardware, making this computational power accessible. Architecturally, GPUs are highly parallel s ...

11 Searching the WebAugust 2001 **ACM Transactions on Internet Technology (TOIT)**, Volume 1 Issue 1**Publisher:** ACM PressFull text available:  [pdf\(319.98 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

We offer an overview of current Web search engine design. After introducing a generic search engine architecture, we examine each engine component in turn. We cover crawling, local Web page storage, indexing, and the use of link analysis for boosting search performance. The most common design and implementation techniques for each of these components are presented. For this presentation we draw from the literature and from our own experimental search engine testbed. Emphasis is on introduci ...

Keywords: HITS, PageRank, authorities, crawling, indexing, information retrieval, link analysis, search engine

12 Seeing, hearing, and touching: putting it all together



Brian Fisher, Sidney Fels, Karon MacLean, Tamara Munzner, Ronald Rensink
August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

Publisher: ACM Press

Full text available: [pdf\(20.64 MB\)](#) Additional Information: [full citation](#)

13 Compiler-based I/O prefetching for out-of-core applications



Angela Demke Brown, Todd C. Mowry, Orran Krieger
May 2001 **ACM Transactions on Computer Systems (TOCS)**, Volume 19 Issue 2

Publisher: ACM Press

Full text available: [pdf\(499.03 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Current operating systems offer poor performance when a numeric application's working set does not fit in main memory. As a result, programmers who wish to solve "out-of-core" problems efficiently are typically faced with the onerous task of rewriting an application to use explicit I/O operations (e.g., read/write). In this paper, we propose and evaluate a fully automatic technique which liberates the programmer from this task, provides high performance, and requires only minima ...

Keywords: compiler optimization, prefetching, virtual memory

14 Poster session 2: Low energy FPGA interconnect design



Rohini Krishnan, Jose Pineda de Gyvez, Martijn T. Bennebroek
April 2004 **Proceedings of the 14th ACM Great Lakes symposium on VLSI**

Publisher: ACM Press

Full text available: [pdf\(251.93 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We propose a new low energy FPGA interconnect fabric that is based on low energy switch blocks using Dynamic Threshold CMOS (DTMOS) based switches and an encoded-low swing (EL) technique. The presented case study illustrates that the encoded-low swing technique and Dual Threshold MOS based switches results in 41% energy reduction compared to the conventional technique using full swing signalling and NMOS pass transistor based switches. We also show through a theoretical analysis, that a certain ...

Keywords: FPGA, encoding, interconnect, low power

15 Power minimization in IC design: principles and applications



Massoud Pedram
January 1996 **ACM Transactions on Design Automation of Electronic Systems (TODAES)**, Volume 1 Issue 1

Publisher: ACM Press

Full text available: [pdf\(550.02 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Low power has emerged as a principal theme in today's electronics industry. The need for low power has caused a major paradigm shift in which power dissipation is as important

as performance and area. This article presents an in-depth survey of CAD methodologies and techniques for designing low power digital CMOS circuits and systems and describes the many issues facing designers at architectural, logical, and physical levels of design abstraction. It reviews some of the techniques and tool ...

Keywords: CMOS circuits, adiabatic circuits, computer-aided design of VLSI, dynamic power dissipation, energy-delay product, gated clocks, layout, low power layout, low power synthesis, lower-power design, power analysis and estimation, power management, power minimization and management, probabilistic analysis, silicon-on-insulator technology, statistical sampling, switched capacitance, switching activity, symbolic simulation, synthesis, system design

16 Performance of recovery architectures in parallel associative database processors



Alfonso F. Cardenas, Farid Alavian, Algirdas Avizienis

September 1983 **ACM Transactions on Database Systems (TODS)**, Volume 8 Issue 3

Publisher: ACM Press

Full text available: [pdf\(2.28 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The need for robust recovery facilities in modern database management systems is quite well known. Various authors have addressed recovery facilities and specific techniques, but none have delved into the problem of recovery in database machines. In this paper, the types of undesirable events that occur in a database environment are classified and the necessary recovery information, with subsequent actions to recover the correct state of the database, is summarized. A model of the "pr ...

Keywords: associative database processors

17 Caching and database scaling in distributed shared-nothing information retrieval systems



Anthony Tomasic, Hector Garcia-Molina

June 1993 **ACM SIGMOD Record , Proceedings of the 1993 ACM SIGMOD international conference on Management of data SIGMOD '93**, Volume 22 Issue 2

Publisher: ACM Press

Full text available: [pdf\(1.07 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A common class of existing information retrieval system provides access to abstracts. For example Stanford University, through its FOLIO system, provides access to the INSPECT database of abstracts of the literature on physics, computer science, electrical engineering, etc. In this paper this database is studied by using a trace-driven simulation. We focus on physical index design, inverted index caching, and database scaling in a distributed shared-nothing system. All three issues are show ...

18 Design issues for dynamic voltage scaling



Thomas D. Burd, Robert W. Brodersen

August 2000 **Proceedings of the 2000 international symposium on Low power electronics and design**

Publisher: ACM Press

Full text available: [pdf\(1.55 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Processors in portable electronic devices generally have a computational load which has time-varying performance requirements. Dynamic Voltage Scaling is a method to vary the processors supply voltage so that it consumes the minimal amount of energy by operating

at the minimum performance level required by the active software processes. A dynamically varying supply voltage has implications on the processor circuit design and design flow, but with some minimal constraints it is straightforwa ...

Keywords: circuit design, energy efficient, processor, variable voltage

19 A Practical Approach to Selecting Record Access Paths



D. G. Severance, J. V. Carlis

December 1977 **ACM Computing Surveys (CSUR)**, Volume 9 Issue 4

Publisher: ACM Press

Full text available: pdf(1.21 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

20 Crosstalk noise avoidance and power/ground network optimization: A perturbation-aware noise convergence methodology for high frequency microprocessors



Prashant Saxena, Kumar N. Lalgudi, Hans J. Greub, Janet M. Wang-Roveda

January 2005 **Proceedings of the 2005 conference on Asia South Pacific design automation ASP-DAC '05**

Publisher: ACM Press

Full text available: pdf(340.01 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

We present a practical flow that automates the process of analyzing noise failures and determining and implementing the most appropriate design fixes in high performance designs. For each noise problem, the flow implicitly identifies the most sensitive relevant electrical parameter(s) which it then maps to a physical solution that minimizes design perturbation. Integrated with standard physical synthesis, it was used extensively in a high volume 90 nm multi-GHz microprocessor project.

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» Key

IEEE JNL IEEE Journal or Magazine

IEE JNL IEE Journal or Magazine

IEEE CNF IEEE Conference Proceeding

IEE CNF IEE Conference Proceeding

IEEE STD IEEE Standard

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- ☐ 1. A 6-bit 2GSPS interpolated flash type CMOS A/D converter with a buffer and one-zero detecting encoder
Yujin Park; Sanghoon Hwang; Minkyu Song;
[IEEE-NEWCAS Conference, 2005. The 3rd International](#)
19-22 June 2005 Page(s):51 - 54
Digital Object Identifier 10.1109/NEWCAS.2005.1496704
[AbstractPlus](#) | Full Text: [PDF](#)(942 KB) IEEE CNF
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- ☐ 2. A predictive control scheme for DC voltage and AC current in grid-connected photovoltaic inverters with minimum DC link capacitance
Kotsopoulos, A.; Duarte, J.L.; Hendrix, M.A.M.;
[Industrial Electronics Society, 2001. IECON '01. The 27th Annual Conference](#)
Volume 3, 29 Nov.-2 Dec. 2001 Page(s):1994 - 1999 vol.3
Digital Object Identifier 10.1109/IECON.2001.975597
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